

CLAIMS

1. A substrate processing system including a plurality of modules into and out of which a substrate is transferred, and a substrate moving mechanism which moves the substrate among said modules, said system comprising:

a transfer control table in which a transfer schedule representing a relationship between a transfer timing of the substrate and said modules into and out of which the substrate is transferred is stored; and

control means including a function of generating said transfer schedule of a plurality of substrates in a unit of a lot on said transfer control table, and a function of controlling the substrate moving mechanism based on said transfer schedule read from said transfer control table.

2. The substrate processing system according to claim 1, wherein said transfer control table comprises a two-dimensional table comprised of a time axis along which transfer timings at which a transfer operation of the substrate is performed in a predetermined cycle is set, and a transfer flow axis along which said modules into and out of which the substrate is transferred are laid out, and said transfer schedule is generated by setting identification information of each of the substrates which is transferred into and out from said modules with respect to a unit memory area to be specified by designating a specific one of said transfer timings and a specific one of said modules in said two-dimensional table.

3. The substrate processing system according to claim 1, wherein said control means further comprises a function which, when said transfer schedule of a plurality of said lots with an equal transfer recipe comprised of a combination of said modules and a moving order of the substrate among said modules is set in said transfer control table, sets said transfer schedule ahead for each of said modules in said transfer recipe.

4. The substrate processing system according to claim 1, wherein said control means further comprises a function which, when said transfer schedule of a plurality of said lots with an equal transfer recipe comprised of a combination of said modules and a moving order of the substrate among said modules is set in said transfer control table, intentionally delays a start timing of said transfer schedule of a succeeding lot from an optimal start timing in such a way that a transfer in/out time to a specific one of said modules becomes equal for all the substrates of said succeeding lot.

5. The substrate processing system according to claim 1, comprising display means which displays set contents of said transfer control table in a visible form.

6. A substrate processing system including a plurality of modules into and out of which a substrate is transferred, and a substrate moving mechanism which moves the substrate among said modules, said system comprising:

a transfer control table in which a transfer schedule

representing a relationship between a transfer timing of the substrate and said modules into and out of which the substrate is transferred is stored; and

control means including a function of generating said transfer schedule of a plurality of substrates in a unit of a lot on said transfer control table, a function of setting a start timing for said transfer schedule of a succeeding lot ahead to an end timing for a preceding lot within a range over which said transfer schedule of each of a plurality of said lots does not interfere, and a function of controlling the substrate moving mechanism based on said transfer schedule read from said transfer control table.

7. The substrate processing system according to claim 6, wherein said transfer control table comprises a two-dimensional table comprised of a time axis along which transfer timings at which a transfer operation of the substrate is performed in a predetermined cycle is set, and a transfer flow axis along which said modules into and out of which the substrate is transferred are laid out, and said transfer schedule is generated by setting identification information of each of the substrates which is transferred into and out from said modules with respect to a unit memory area to be specified by designating a specific one of said transfer timings and a specific one of said modules in said two-dimensional table.

8. The substrate processing system according to claim 6, wherein said control means further comprises a function

which, when said transfer schedule of a plurality of said lots with an equal transfer recipe comprised of a combination of said modules and a moving order of the substrate among said modules is set in said transfer control table, sets said transfer schedule ahead for each of said modules in said transfer recipe.

9. The substrate processing system according to claim 6, wherein said control means further comprises a function which, when said transfer schedule of a plurality of said lots with an equal transfer recipe comprised of a combination of said modules and a moving order of the substrate among said modules is set in said transfer control table, intentionally delays a start timing of said transfer schedule of a succeeding lot from an optimal start timing in such a way that a transfer in/out time to a specific one of said modules becomes equal for all the substrates of said succeeding lot.

10. The substrate processing system according to claim 6, comprising display means which displays set contents of said transfer control table in a visible form.

11. A substrate processing system including a plurality of modules into and out of which a substrate is transferred, and a substrate moving mechanism which moves the substrate among said modules, and comprising:

a transfer control table comprised of a time axis along which transfer timings at which a transfer operation of the substrate is performed in a predetermined cycle is set, and

a transfer flow axis along which said modules into and out of which the substrate is transferred are laid out; and

control means including a function of generating said

transfer schedule of a plurality of substrates in a unit of

5 a lot on said transfer control table by setting

identification information of each of the substrates which

is transferred into and out from said modules with respect

to a cell to be specified by designating a specific one of

said transfer timings and a specific one of said modules in

10 said two-dimensional table, a function of moving all of said

cells included in said transfer schedule of a succeeding lot

ahead in a direction of said time axis within a range over

which a contour of a figure constituted by said cells

included in said transfer schedule of each of a plurality of

15 said lots set on said transfer control table does not

interfere, and a function of controlling said substrate

moving mechanism based on said transfer schedule read from

said transfer control table at every said transfer timing.

12. A substrate processing system including a resist

20 coating module which performs resist coating on a

semiconductor substrate, a development module which develops

a resist coated on said semiconductor substrate, and a

process module which performs any one of a hydrophobic

process, a heating process, a cooling process, and a holding

25 process on the semiconductor substrate, and a substrate

moving mechanism which moves the semiconductor substrate

among said modules, said system comprising:

a transfer control table comprised of a time axis along which transfer timings at which a transfer operation of the semiconductor substrate is performed in a predetermined cycle is set, and a transfer flow axis along which said
5 modules into and out of which the semiconductor substrate is transferred are laid out; and

control means including a function of generating said transfer schedule of a plurality of semiconductor substrates in a unit of a lot on said transfer control table by setting
10 identification information of each of the semiconductor substrates which is transferred into and out from said modules with respect to a cell to be specified by designating a specific one of said transfer timings and a specific one of said modules in said two-dimensional table,
15 a function of moving all of said cells included in said transfer schedule of a succeeding lot ahead in a direction of said time axis within a range over which a contour of a figure constituted by said cells included in said transfer schedule of each of a plurality of said lots set on said
20 transfer control table does not interfere, and a function of controlling said substrate moving mechanism based on said transfer schedule read from said transfer control table at every said transfer timing.

13. A control method for a substrate processing system
25 including a plurality of modules into and out of which a substrate is transferred, and a substrate moving mechanism which moves the substrate among said modules, said control

method comprising steps of:

generating, on a transfer control table in which a transfer schedule representing a relationship between a transfer timing of the substrate and said modules into and out of which said substrate is transferred is stored, said transfer schedule of a plurality of substrates in a unit of a lot on said transfer control table; and

controlling said substrate moving mechanism based on said transfer schedule read from said transfer control table.

10 14. The control method for a substrate processing system according to claim 13, wherein said transfer control table comprises a two-dimensional table comprised of a time axis along which transfer timings at which a transfer operation of the substrate is performed in a predetermined cycle is set, and a transfer flow axis along which said modules into and out of which the substrate is transferred are laid out, and

20 said transfer schedule is generated by setting identification information of each of the substrates which is transferred into and out from said modules with respect to a unit memory area to be specified by designating a specific one of said transfer timings and a specific one of said modules in said two-dimensional table.

25 15. The control method for a substrate processing system according to claim 13, wherein when said transfer schedule of a plurality of said lots with an equal transfer recipe comprised of a combination of said modules and a

moving order of the substrate among said modules is set in said transfer control table, said transfer schedule is set ahead for each of said modules in said transfer recipe.

16. The control method for a substrate processing
5 system according to claim 13, wherein when said transfer schedule of a plurality of said lots with an equal transfer recipe comprised of a combination of said modules and a moving order of the substrate among said modules is set in said transfer control table, a start timing of said transfer
10 schedule of a succeeding lot is intentionally delayed from an optimal start timing in such a way that a transfer in/out time to a specific one of said modules becomes equal for all the substrates of said succeeding lot.

17. The control method for a substrate processing
15 system according to claim 13, wherein contents of said transfer control table are displayed in a visible form.

18. A control method for a substrate processing system including a plurality of modules into and out of which a substrate is transferred, and a substrate moving mechanism
20 which moves the substrate among said modules, said control method comprising steps of:

generating, on a transfer control table in which a transfer schedule representing a relationship between a transfer timing of said substrate and said modules into and
25 out of which the substrate is transferred is stored, said transfer schedule of a plurality of substrates in a unit of a lot on said transfer control table;

moving a start timing for said transfer schedule of a succeeding lot ahead to an end timing for a preceding lot within a range over which said transfer schedule of each of a plurality of said lots set on said transfer control table does not interfere; and

controlling the substrate moving mechanism based on said transfer schedule read from said transfer control table.

19. The control method for a substrate processing system according to claim 18, wherein said transfer control table comprises a two-dimensional table comprised of a time axis along which transfer timings at which a transfer operation of the substrate is performed in a predetermined cycle is set, and a transfer flow axis along which said modules into and out of which the substrate is transferred are laid out, and

said transfer schedule is generated by setting identification information of each of the substrates which is transferred into and out from said modules with respect to a unit memory area to be specified by designating a specific one of said transfer timings and a specific one of said modules in said two-dimensional table.

20. The control method for a substrate processing system according to claim 18, wherein when said transfer schedule of a plurality of said lots with an equal transfer recipe comprised of a combination of said modules and a moving order of the substrate among said modules is set in said transfer control table, said transfer schedule is set

ahead for each of said modules in said transfer recipe.

21. The control method for a substrate processing system according to claim 18, wherein when said transfer schedule of a plurality of said lots with an equal transfer recipe comprised of a combination of said modules and a moving order of the substrate among said modules is set in said transfer control table, a start timing of said transfer schedule of a succeeding lot is intentionally delayed from an optimal start timing in such a way that a transfer in/out time to a specific one of said modules becomes equal for all the substrates of said succeeding lot.

22. The control method for a substrate processing system according to claim 18, wherein contents of said transfer control table are displayed in a visible form.

23. A control method for a substrate processing system including a plurality of modules into and out of which a substrate is transferred, and a substrate moving mechanism which moves the substrate among said modules, said control method comprising steps of:

generating, on a transfer control table comprised of a time axis along which transfer timings at which a transfer operation of the substrate is performed in a predetermined cycle is set, and a transfer flow axis along which said modules into and out of which the substrate is transferred are laid out, said transfer schedule of a plurality of substrates in a unit of a lot on said transfer control table by setting identification information of each of the

substrates which is transferred into and out from said modules with respect to a cell to be specified by designating a specific one of said transfer timings and a specific one of said modules in said two-dimensional table;

5 moving all of said cells included in said transfer schedule of a succeeding lot ahead in a direction of said time axis within a range over which a contour of a figure constituted by said cells included in said transfer schedule of each of a plurality of said lots set on said transfer
10 control table does not interfere; and

 controlling the substrate moving mechanism based on said transfer schedule read from said transfer control table at every said transfer timing.

24. A control method for a substrate processing system
15 including a resist coating module which performs resist coating on a semiconductor substrate, a development module which develops a resist coated on said semiconductor substrate, and a process module which performs any one of a hydrophobic process, a heating process, a cooling process,
20 and a holding process on the semiconductor substrate, and a substrate moving mechanism which moves the semiconductor substrate among said modules, said control method comprising steps of:

 generating, on a transfer control table comprised of a
25 time axis along which transfer timings at which a transfer operation of the semiconductor substrate is performed in a predetermined cycle is set, and a transfer flow axis along

which said modules into and out of which the semiconductor substrate is transferred are laid out, said transfer schedule of a plurality of semiconductor substrates in a unit of a lot on said transfer control table by setting
5 identification information of each of the semiconductor substrates which is transferred into and out from said modules with respect to a cell to be specified by designating a specific one of said transfer timings and a specific one of said modules in said two-dimensional table;

10 moving all of said cells included in said transfer schedule of a succeeding lot ahead in a direction of said time axis within a range over which a contour of a figure constituted by said cells included in said transfer schedule of each of a plurality of said lots set on said transfer
15 control table does not interfere; and

controlling said substrate moving mechanism based on said transfer schedule read from said transfer control table at every said transfer timing.

25 25. A control program for a substrate processing system including a plurality of modules into and out of which a substrate is transferred, a substrate moving mechanism which moves said substrate among said modules, and a computer which controls said modules and said substrate moving mechanism, said control program allowing said
25 computer to execute:

a step of generating, on a transfer control table in which a transfer schedule representing a relationship

between a transfer timing of said substrate and said modules into and out of which the substrate is transferred is stored, said transfer schedule of a plurality of substrates in a unit of a lot on said transfer control table; and

5 a step of controlling said substrate moving mechanism based on said transfer schedule read from said transfer control table.

26. A control program for a substrate processing system including a plurality of modules into and out of
10 which a substrate is transferred, a substrate moving mechanism which moves the substrate among said modules, and a computer which controls said modules and said substrate moving mechanism, said control program allowing said computer to execute:

15 a step of generating, on a transfer control table in which a transfer schedule representing a relationship between a transfer timing of said substrate and said modules into and out of which the substrate is transferred is stored, said transfer schedule of a plurality of substrates in a
20 unit of a lot on said transfer control table;

 a step of moving a start timing for said transfer schedule of a succeeding lot ahead to an end timing for a preceding lot within a range over which said transfer schedule of each of a plurality of said lots set on said
25 transfer control table does not interfere; and

 a step of controlling said substrate moving mechanism based on said transfer schedule read from said transfer

control table.

27. A computer readable storage medium storing a control program for a substrate processing system including a plurality of modules into and out of which a substrate is transferred, a substrate moving mechanism which moves the substrate among said modules, and a computer which controls said modules and said substrate moving mechanism, said control program allowing said computer to execute:

a step of generating, on a transfer control table in which a transfer schedule representing a relationship between a transfer timing of the substrate and said modules into and out of which the substrate is transferred is stored, said transfer schedule of a plurality of substrates in a unit of a lot on said transfer control table; and

a step of controlling said substrate moving mechanism based on said transfer schedule read from said transfer control table.

28. A computer readable storage medium storing a control program for a substrate processing system including a plurality of modules into and out of which a substrate is transferred, a substrate moving mechanism which moves the substrate among said modules, and a computer which controls said modules and said substrate moving mechanism, said control program allowing said computer to execute:

a step of generating, on a transfer control table in which a transfer schedule representing a relationship between a transfer timing of the substrate and said modules

into and out of which the substrate is transferred is stored,
said transfer schedule of a plurality of substrates in a
unit of a lot on said transfer control table;

5 a step of moving a start timing for said transfer
schedule of a succeeding lot ahead to an end timing for a
preceding lot within a range over which said transfer
schedule of each of a plurality of said lots set on said
transfer control table does not interfere; and

10 a step of controlling said substrate moving mechanism
based on said transfer schedule read from said transfer
control table.